

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

LDWSF

1.11

12/1/74

SUBJECT: PCB inputs into the Duwamish River

DATE: 12/1/74

FROM: J. N. Blazeovich *JNB*

TO: F. Nelson, Chief
Technical Support Branch

On July 12, 1974 a meeting concerning determination of sources of PCB in the Duwamish River was held at Metro's 410 West Harrison facility (see memo J. B. August 7, 1974). General agreement with Metro personnel and others present led to the following actions:

- (1) Metro personnel sampled suspect storm-sewer interceptors.
- (2) EPA Region X personnel sampled sediments next to suspect input sources (e.g. near industrial outfalls).
- (3) EPA Region X personnel performed necessary analytical work on both sets of samples.

The work is now complete and the results are shown in Tables 1 and 2. Maps of the areas sampled are attached to help locate sampling sites.

Results from Table 1 indicate low levels of PCBs in Lander Street interceptor sediments, moderate concentrations in those of Harbor and Chelan Street, and high values in samples taken from Brighton Street and Hanford Street interceptors. A special note is warranted regarding the Brighton Street sample in which copious quantities of an unidentified material were found to be present. Further analysis by GC/MS is necessary.

Of interest are the results of samples taken from slip 4, a receiving area of Boeing Co. surface runoff and City Light industrial discharge. There is a substantial increase in PCB concentrations in the sediments as one approaches the east end of the slip. This strongly suggests that a source either current or historical exists in the area.

The area at the foot of Myrtle Street shows moderate PCB levels that are two to three times higher than mid-channel values. The same is true of sediments taken between the drydocks of Duwamish Shipyards Inc. One may conclude that possible PCB inputs exist at these points. The shipyard input sources could be related to the use of PCBs in marine paints. If so, this source would be difficult to control unless the practice of adding PCBs to marine paints is curtailed.

Near background levels of PCBs were found at the foot of Brighton and Lander Streets, in sediments taken from the Black and Green Rivers (Orillia Bridge) and in the upper Duwamish turning basin.

It is of interest to compare PCB values of sediments of corresponding interceptor and outfall areas. It is reassuring to find low PCB levels in sediments taken from the foot of Lander Street and the interceptor that empties into the area, but it is puzzling to see low PCB levels at the foot of Brighton Street when interceptor values are high. The apparent



discrepancy may be explained if one considers possible localized concentrations in the area. Since only one sediment sample was taken in the receiving area, sediments containing higher PCB levels may have been missed. This explanation is reinforced when one examines PCB levels in sediments taken in the recent PCB spill area at slip one. Here PCB levels change from 3% to 0.2 ppm in less than 300 feet.

The above results indicate the following:

- (1) Sources of PCBs appear to exist at each of five locations: Brighton and Hanford Streets, the Duwamish Shipyards, slip 4 and Myrtle Street.
- (2) Possible sources of PCBs exist near Lockheed Shipyards and at Chelan and Harbor Streets.
- (3) There appears to be little input from the Black and Green Rivers.
- (4) Future work is necessary to determine if identified sources are historical or current and to identify other possible pollutants using the GC/MS technique.

copy: Arnold R. Gahler

TABLE I

		PCB in ppm *		
<u>LOCATION</u>	<u>LOCATION</u>	<u>1242</u>	<u>1248/54</u>	<u>TOTAL</u>
31010 Sed	Chelan Street	1.15	0.97	2.12
31011 Sed **	Brighton St.	5.0	20.2	25.2
31012 Sed	Harbor Street	0.9	0.6	1.5
31013 Sed	Hanford Street	15.9	3.36	19.26
31014 Sed	Lander Street	0.25	0.28	0.53

Wet weight

** Large quantities of material with a retention time near Endrin were observed - further GC/MS work is needed.

TABLE II

date ?

<u>LABORATORY NO.</u>	<u>STATION NO.</u>	<u>LOCATION</u>	PCB in ppm *		
			<u>1242</u>	<u>1248/54</u>	<u>TOTAL</u>
33010 Sed	✓ DB #0	Mid Channel off Boeing Developmental Center	0.12	0.14	0.26
33016 Sed	✓ DB #1	Lander Street-West Water Way	-	0.28	0.28
33017 Sed	✓ DB #2	100 + 00 - West Side Duwamish River	0.35	2.0	2.35
33018 Sed	✓ DB #3	Foot of Brighton Street East Side of Duwamish R.	-	0.18	0.18
33019 Sed	✓ DB #4	Foot of Myrtle Street Duwamish River	-	1.55	1.55
33020 Sed	✓ DB #5	Slip 4 off Hydraulic supply pier	0.5	2.3	2.8
33021 Sed	✓ DB #6	146 + 00 - West Side of River (Orchard Street)		lost sample	
33022 Sed	✓ DB #7	Innermost - Water - slip 4	-	9.4	9.4
33023 Sed	DB #8	Black River at pump station	0.11	0.28	0.39
33024 Sed	DB #9	Orillia Bridge	-	-	-
33025 Sed	✓ DB #10	West Side - West Water Way at Lockheed	0.11	1.86	1.97

* Wet weight





